

C.A.S. 2



AROUND THE WORLD WITH KENTING

The following pages present short reports, news items and photographs of many of the different operations and areas in which Kenting is active.


NEWFOUNDLAND JOINS KENTING!

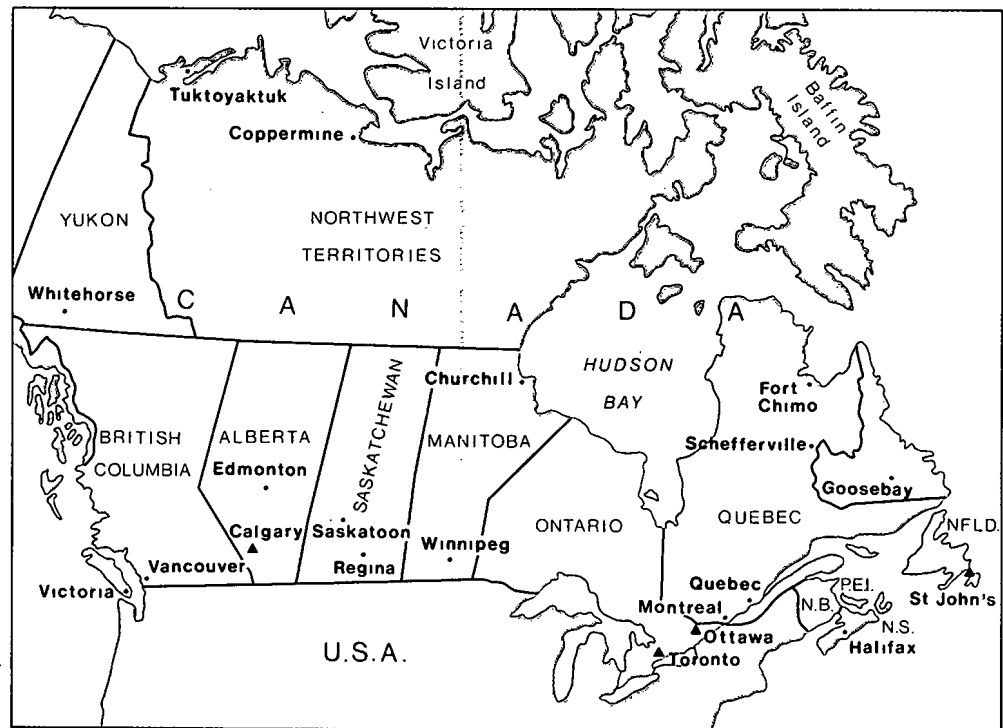
Map by Chris Renaud

Kenting Earth Sciences Limited is pleased to announce that the company has acquired the assets of Newfoundland and Labrador Surveys Limited, of St. John's, Newfoundland. The company officially joined the Kenting group on February 1st, 1982 and has taken the Kenting Earth Sciences name.

The acquisition complements Kenting's other photogrammetric services across Canada, with branch offices operating in Don Mills (Toronto) Ontario, and Calgary, Alberta.

The new St. John's office remains at the same location in the K-Mart Plaza on Torbay Road with Gerald (Gerry) C. Curtis as branch manager. The company will continue to offer clients in Eastern Canada the same services as previously, but will be able to call on headquarters in Ottawa for back-up and additional services such as a highly accurate system of aerial triangulation, high speed computing, and special applications and automated drafting on Kenting's Calcomp table (SURVEY 1980).

The Newfoundland branch currently includes photo laboratory facilities, photogrammetric compilation and drafting services. Field survey operations will be provided by Kenting Earth Sciences and our associated company, Atlantic Surveys Limited of St. John's, Newfoundland (SURVEY 1981). 



NORTHERN QUEBEC


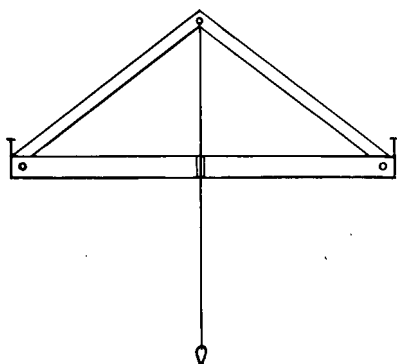
Kenting does a lot of work in Canada, although in SURVEY we tend to highlight the more interesting overseas work. Keith Hall was in northeastern Canada during the summer of 1981 and took the photo of the Fraser River just prior to a storm. Keith was working on a magnetometer survey for the federal government. The photo at right was taken about 200 miles (320 kms) north of Schefferville. 

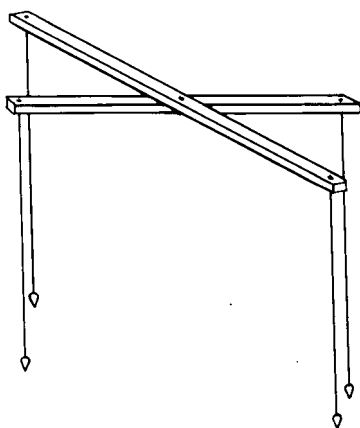
Photo by Keith Hall





(Left) Levelling instrument used by early surveyors was simply constructed by using two equal lengths of wood joined to a base. A plumb bob was hung from the apex of the triangle. While the surveyor sighted, an assistant checked the plumb line cut the centre mark on the base.

(Right) The groma was constructed using two equal lengths of wood fixed through the centre. Plumb bobs were hung from each end. When the distance measured from each plumb bob to the next was equal in each case, the instrument was "in adjustment." Right angles for construction layout were produced by lining two of the plumb lines along one side of the construction, then sighting along the other two lines. Presumably when the wind blew construction stopped!



put his 0° through the Fortunate Islands (now the Canary Islands 15° west of Greenwich), possibly for no other reason than the Mediterranean then fell all to the east of his prime meridian, thus evading the problem of westings.

The Greeks were in the habit of using a log line for estimating distances from point to point along the coast while they sailed their ships, and probably much of Ptolemaeus' map is based on such information. A lot of the map information is rather rough, and the interior of the land masses is largely in error. The error, for example, between Baghdad and Toledo on Ptolemaeus' map is 18°, though this was not much improved until 1,000 years later when Ibn Yunis of Cairo recalculated the positions, reducing the error to 3°. Early Baghdad, incidentally, was a great seat of learning, and an arc of meridian was measured on the plain of Mesopotamia in 827 A.D.

At the beginning of the Christian era, Hero, a Greek scientist who also lived in Alexandria, wrote a treatise on some early surveying instruments. One that he mentioned was the dioptra. This was a plane table device, which even had a screw system for levelling the table. The plane table was divided into quadrants, and there was a sighting instrument which was often used by the Romans for maintaining the alignment of their roads. The dioptra could also be used for levelling if a water trough was placed on the top to ensure it was horizontal.

The Romans are also credited with having invented an instrument known as a groma. This

consisted of two vertical pairs of plumb lines suspended from the ends of two horizontal rods at right angles to one another. The groma was used for laying out right angles needed in construction. Metal parts of one instrument were found in the ruins of Pompeii, although, again, an earlier form of groma had been found in Egypt.

From then until the 16th century, there was little advance in the art of surveying and map making as Europe descended into the Dark Ages. But we do know that the Arabs were using a compass by the year 1400 A.D., and that they had maps of the coastlines of countries they visited for trade. Vasco da Gama, for instance, was shown a chart of the Indian coastline.


By the 16th century, plane tables were in fairly common use by surveyors in Europe, and graphical triangulation and intersection was commonly practised. Mercator Gerardus was born in Flanders in 1512. In 1568 he produced the first map with parallels and meridians at right angles, and gave his name to the most common map projection used today. In 1612, a Dutch mathematician, Willebrord Snell, measured an arc of meridian by instrumental triangulation, and the art of map making became something of a precise science. A book that had been published in England in 1571 refers to a "theodelitus and instrument topographical," which is the first reference we have of instruments used for measuring horizontal angles combined with angles of elevation.

The invention in the seventeenth century of the telescope, resulted, eventually, in a marriage

with the angular reading instruments to produce something similar in surveying instruments to what we use today.

It was not until the early 1900s, however, that light weight, portable transit theodolites reading to one second accuracy were produced. The famous names of that time were, of course, Cook, Troughton and Simms, Hilger and Watts, Zeiss, and Wild. The Wild T3 first order instrument was brought onto the market in 1925.

Incidentally, transit theodolite is the correct name for the instruments, though in North America the former word is more commonly used, whereas in Europe surveyors prefer to use "theodolite."

Today, instrument technology is taking a new twist, and inertial and satellite instrumentation are taking over from the theodolites, especially in the field of primary triangulation, and small scale mapping control. Perhaps in the future the theodolite will become as obsolete as the electronic distance measuring devices have made the chain. Over the years, however, the surveyor himself has survived. Even if his nature has changed, the final result of his job, a description, either verbal, written or graphical of the earth, is still his goal. The ancient Egyptians, Greeks and Romans, and every other organised civilization has had a word for the job, and the man who has done it has come a long way. 



The Nilometer, located at the south of Rhoda Island, Cairo, is the oldest surviving water gauge in the world, dating from 861 a.d. Built by Khalif al-Mutawakkil, the stone column is divided into 16 cubits (each about 54cms). Water entered through three tunnels at different levels, now permanently closed. Photo by Robert A. Fowler